

# **ASSESS WATER QUALITY IN THE TIMPANOGOS CAVE SYSTEM FY2003 REPORT**

Timpanogos Cave National Monument

## **Summary**

Timpanogos Cave contains a unique undisturbed alpine cave hydrology. To study Timpanogos Cave's unique hydrology and to gain a better understanding of how the water quality affects the cave's ecology, Timpanogos Cave NM wishing to implement a cave water quality monitoring program. This program will establish baseline water quality data, develop a long-term water quality monitoring program, and link water quality to microbial diversity and health. The baseline water quality data will be established by sending quarterly water quality samples to a lab for detailed analysis. At the end of the project, the water chemistry's role in the development of the cave and maintaining a healthy ecology will be better understood.

## **Progress**

The project focused on gathering of baseline data on general water quality profiles, contamination testing, and microbial diversity. General profile sampling and a microbial diversity study was combined to characterize the difference between disturbed and pristine water drainages. Samples were taken from 10 locations - half depicting "disturbed" areas and half depicting "pristine" areas. Sequences are being analyzed by Brigham Young University. The profiling samples will include: pH, total dissolved solids, carbonates, minerals, hardness, nitrate, nitrogen, chlorides, iron, phosphorus, and fluoride. The results will show how introduced trail debris is affecting the water quality.

Contamination testing was conducted to establish trace levels of any future possible contamination. Contaminant testing was performed at one location in each of the 3 caves. Contaminants that will be tested for are total coliform, E.coli, Heavy Metals, gasoline, diesel, MTBE, Cyanide, purgables (VOCS), semi-volatiles, and pesticides. This data establishes baseline data, for all of possible future contaminants.

All of the water quality testing was performed by ChemTech-Ford Analytical Laboratories in Salt Lake City. The general profiling results are still being studied. The contamination testing shows only trace amounts of any contamination. The tests also showed the present of Total Coliform in one of the cave's lakes. The results are being sent out for reviewed by professional to see if any further action is needed.

**Contacts**

Mike Gosse, Chief Ranger  
Timpanogos Cave National Monument  
(801) 756-5239

Jon Jasper, Resource Management Specialist  
Timpanogos Cave National Monument  
(801) 492-3647